

hydrogen chloride, ammonia (three ways), hydrogen sulphide, sulphur dioxide, and carbon dioxide. Modes of determining the composition of the oxides, sulphides, halides, nitrates, sulphates, and carbonates of a large number of metals are described. The directions are clear and explicit.

In his preface, the author speaks of "a course which should emphasize the quantitative relations by means of a comparatively large number of determinations," and adds, "this collection of experiments may serve as a laboratory guide for such a course, and also furnish suggestions for the enrichment of the first year's work." Chemists are now unanimous in admitting that quantitative experiments, sufficient adequately to illustrate the quantitative laws, are a necessity. Few feel that time can be spared for the performance of more than the half dozen exercises required for this purpose. There is a real difference of opinion, however, in regard to the epoch in the course at which the quantitative experiments may most fitly be introduced. Professor Stoddard has done a genuine service in working out experiments covering so wide a range. There is hardly a chapter in the text-book in connection with which, with the help of experiments selected from his book, the illustration of the laws might not now be taken up.

ALEXANDER SMITH.

A Text-Book of Physics. By A. WILMER DUFF, KARL E. GUTHE, WILLIAM HALLOCK, E. PERCIVAL LEWIS, ARTHUR W. GODSPEED, ALBERT P. CARMAN, R. K. McCLUNG: Edited by A. WILMER DUFF. Philadelphia: P. Blakiston's Son and Co. 1908. pp. 666. Cloth. Price, \$2.75 net.

This is a novel experiment in text-book writing. Each of the seven sections was written by a single author, but submitted to all the other contributors and to the editor before reaching its final form. This method could not, however, produce complete uniformity either in style or in scientific adequacy. There are several weak places in the work, notably in the paragraphs on electrochemistry, which are vague and sometimes quite erroneous. Nevertheless, on the whole, the work is accurate, well balanced, and practical, and it will doubtless take a place in the first rank of college text-books in physics.

GILBERT N. LEWIS.

Introduction to the Rarer Elements. By PHILIP E. BROWNING, Ph.D., Yale University. 2nd Edition. New York: John Wiley and Sons. Price, \$1.50.

This little volume, covering 206 pages, should be studied by every student of chemistry. Those who carry out conscientiously the isolation of the various elements or derivatives of them, or, let us say one-half dozen of them, will find themselves in the possession of a mass of most interesting facts which can be acquired by no amount of reading or consultation of learned treatises. A respect for inorganic chemistry and an appreciation of its treasures cannot be better obtained than by performing with one's own hand some of the experimental work here offered by Dr. Browning. We may differ with him relative to some of the schemes of

decomposition and also in reference to some of the methods of separation of the rarer elements, but the chief purpose of the book is to bring students of chemistry into actual contact with a neglected series of elements, to learn to know them from their occurrence to the preparation of their derivatives and then to acquire more intimate familiarity by a study of their reactions. Let those who doubt make such a study and the reviewer is certain that they will concur with him in the statement that this book possesses a great value for all chemists. EDGAR F. SMITH.

Einführung in die Kolloidchemie. By DR. VIKTOR PÖSCHL. 47 pp. Theodor Steinkopff, Dresden. 1908.

This is intended as an introduction to colloids, for the use of students of chemistry, pharmacy, etc. The properties, nomenclature and general historical discussion of the subject cover nine pages. Following this are sixteen pages, devoted to methods of preparing specific inorganic colloidal solutions. In the former we note the absence of reference to the interesting fact Picton and Linder pointed out, *i. e.*, the quantitative relationships in coagulating power of different classes of electrolytes, and in the latter colloidal platinum is separately described, but Bredig's method of making it is here omitted, though it appears later. Five or six pages are devoted to the use of the ultramicroscope in colloidal studies. The Brownian movement is described, but the author differentiates between this and the movement of the particles of ultramicroscopic vision, which the reviewer considers incorrect. The migration of colloids under influence of the electric current is touched upon in less than a dozen lines, and the fact is merely mentioned that certain colloids precipitate each other. A score of references to the literature complete the volume. Considering the very great amount of published work on this subject and its wide interest, a still more comprehensive treatment seems warranted, even for an introduction to the subject.

W. R. WHITNEY.

Kolloidchemische Studien am Eiweiss. By W. PAULI. 1908. 28 pp. Theodor Steinkopff, Dresden.

This is a separate publication of an article in the July number of the *Zeit. f. Chem. u. Ind. der Kolloide*. A specially purified blood serum albumen which was amphoteric and did not migrate with the current, was shown to be rendered less easily coagulated by heat through the presence of salts. This effect is apparently due to the surface adsorption of salt on the colloid particles. The viscosity is also affected by the salts, in accord with this idea, while sugar by these tests does not appear to be thus adsorbed.

W. R. WHITNEY.

Grundlagen und Ergebnisse der Pflanzenchemie. Nach der Schwedischen Ausgabe bearbeitet von H. EULER. Erster Teil: Das Chemische Material der Pflanzen.